

Solutions
#10

TEST #2

period 8

10. A man runs at a velocity of 4.5 m/s for 80 s. When going up an increasingly steep hill, he slows down at a constant rate of 0.05 m/s² for 90.0 s and comes to a stop. How far did he run?

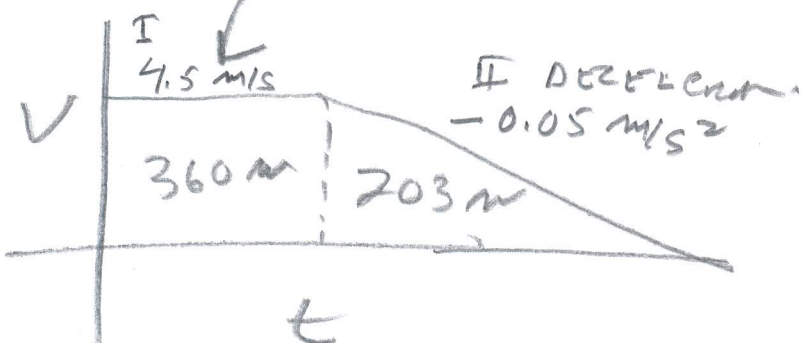
Two separate motions must be added up.

I Const velocity for 80 seconds

$$V = d/t$$

$$4.5 \frac{m}{s} = d/80s$$

$$d = (4.5 \frac{m}{s})(80s) = 360m$$



II Deceleration for 90 seconds

$$d = v_i t + \frac{1}{2} a t^2 = (4.5 \frac{m}{s})(90s) + \frac{1}{2} (-0.05 \frac{m}{s^2})(90s)^2$$

$$= 405m - 202.5m = 202.5m$$

$$TOTAL = 563m$$